



(11) **EP 0 780 665 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
11.11.1998 Bulletin 1998/46

(51) Int. Cl.⁶: **G01F 23/284**, G01S 13/02

(43) Date of publication A2:
25.06.1997 Bulletin 1997/26

(21) Application number: 96120455.9

(22) Date of filing: 19.12.1996

(84) Designated Contracting States:
DE FR GB IT

(30) Priority: 21.12.1995 US 576554
11.12.1996 US 763665

(71) Applicant:
Endress + Hauser GmbH + Co.
79689 Maulburg (DE)

(72) Inventors:

- Wartmann, Gerd
Greenwood, Indiana 46142 (US)
- Cummings, Donald D.
Greenwood, Indiana 46141 (US)
- Perdue, Kenneth L.
Franklin, Indiana 46131 (US)
- Swager, Richard B.
Plainfield, Indiana 46168 (US)

(54) Processor apparatus and method for a process measurement signal

(57) The present invention provides a processor apparatus for processing a time domain reflectometry (TDR) signal having a plurality of reflection pulses to generate a valid output result corresponding to a process variable in a vessel and a method for a process measurement signal. One method includes the use of at least two different techniques for detecting a valid reflection pulse generated by the process variable to calculate an independent result using each of the at least two techniques, and applying a weighted factor to

the independent results from each of the at least two different techniques to provide weighted results. Another method includes establishing an initial boundary signal before the process variable is located in the vessel, storing the initial boundary signal, detecting the TDR signal, determining a baseline signal by subtracting the initial boundary signal from the TDR signal, determining a maximum value of the reflection pulse and calculating an output result based on the maximum value.

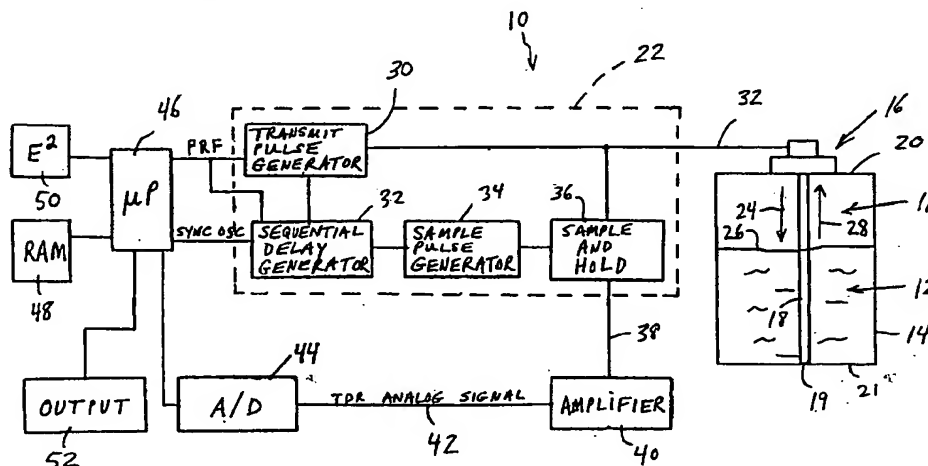


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 12 0455

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	FR 2 626 666 A (FRANCE ETAT PONTS CHAUSSEES) 4 August 1989	25	G01F23/284 G01S13/02
A	* the whole document *	1,3,14, 17,19, 23,33, 36-38	
A	DE 43 01 341 C (HONEYWELL ELAC NAUTIK GMBH) 21 October 1993	1,3,14, 17,19, 23,33, 36-38	
	* the whole document *		
A	US 4 698 634 A (ALONGI ANTHONY V ET AL) 6 October 1987	1,3,14, 17,19, 23,33, 36-38	
	* the whole document *		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G01S
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 September 1998	Examiner Zaccà, F
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)